



Exxon Mobil Pipeline Tank

Houston, Texas

The Geopier® solution provided retrofitting support for six existing storage tanks and a factor of safety greater than 1.3 against edge instability

Description: This project consisted of providing retrofitting support for six existing storage tanks, all with a diameter of 160 feet and a height of 60 feet. The design tank pressure during hydro-testing was 3,500 psf.

Subsurface Conditions: Soil conditions consisted of clay fill that extended to the depths of approximately 7 to 8 feet underlain by soft to medium stiff clay to maximum explored depth of 20 feet. Groundwater was not encountered during drilling. Based on previous experience and analyses for other tank repairs in the general area, we assumed groundwater levels are at a depth of 10 feet.

Geopier Solution: The tanks were originally constructed in 1977 and had up to 9 inches of total settlement and 6 to 7 inches of differential settlement observed prior to the implementation of the Geopier GP3® system. The Geopier® solution consisted of the installation of two rows of 30-in diameter Rammed Aggregate Pier® (RAP) elements with a spacing of 4.5 feet on center. The RAP



elements were installed around the perimeter of each tank within a zone extending 8 feet from the edge of the tank to the depth of 16 feet below existing grade. The RAP elements were constructed using Cement-Treated Aggregate (CTA). A factor of safety greater than 1.3 against edge instability was obtained and less than a 1/2 inch of settlement occurred after the Geopier system was installed.

PROJECT TEAM

Owner:

Exxon Mobil Pipeline Company

Geotechnical Engineer:

Fugro Consultants

General Contractor:

Integrated Service Co, LLC

Geopier Installer:

Peterson Contractors, Inc

Geopier Designer:

GFC - Houston